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Cette étude avait pour but d'évaluer les habiletés de communication en français et le rendement scolaire des élèves du programme intensif de français langue seconde, à la CEPGM. Trois groupes d'élèves de 5e année et trois groupes d'élèves de 6e année ont participé à ce projet, représentant les trois programmes : programme intensif, programme d'immersion et programme régulier de français langue seconde. Les résultats indiquent que, par comparaison avec le programme régulier, le programme intensif favorise visiblement les habiletés de communication en français sans nuire au développement de la langue maternelle ni au rendement scolaire en général.

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AN EVALUATION OF THE INTENSIVE FRENCH PROGRAM: GRADES 5 AND 6

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Résumé

Le but de cette étude était d'évaluer les habilités langagières en français et en anglais et le rendement académique des élèves du programme intensif de français langue seconde. Trois groupes d'élèves en 5e année et trois groupes d'élèves en 6e année ont participé à ce projet. A chaque niveau il y avait un groupe du programme intensif (groupe INT) et deux groupes témoins: un groupe d'élèves du programme d'immersion primaire (groupe IMM) et un groupe d'élèves du programme régulier de français langue seconde (groupe REG).

Les habilités langagières en français ont été évaluées à l'aide des tests suivants: un test de compréhension auditive, un test de lecture, un test d'expression orale et un test d'expression écrite. Les habilités langanières en langue maternelle et le rendement en mathématiques ont été évalués à l'aide d'une série de tests de rendement en anglais (Canadian Tests of Basic Skills).

Les résultats de la 5e année indiquent que: (1) le groupe INT a obtenu des résultats nettement supérieurs à ceux du groupe REG et nettement inférieurs à ceux du groupe IMM à presque tous les tests de français. (2) Il n'y avait pas de différences significatives entre le groupe INT et le groupe REG aux tests d'anglais et de mathématiques à l'exception d'un sous-test de langage où le groupe INT a obtenu des résultats nettement inférieurs à ceux du groupe REG. (3) Le groupe IMM a obtenu des résultats nettement supérieurs à ceux des groupes INT et REG aux tests d'anglais et de mathématiques.

Les résultats de la 6e année indiquent que: (1) le groupe INT a obtenu des résultats nettement supérieurs à ceux du groupe REG et nettement inférieurs à ceux du groupe IMM à presque tous les tests de français. (2) Il n'y avait pas de différences significatives entre le groupe INT et le groupe REG aux tests d'anglais et de mathématiques. (3) Le groupe IMM a obtenu des résultats nettement supérieurs à ceux des groupes INT et REG à trois tests d'anglais: vocabulaire, lecture et un sous-test de langage. Le groupe IMM a aussi obtenu des résultats nettement supérieurs à ceux du groupe INT à un sous-test de mathématiques. Il n'y avait pas d'autres différences significatives entre le groupe IMM et les deux autres groupes aux test d'anglais et de mathématiques.

Les résultats de cette étude nous mènent à conclure, que, par comparaison au programme régulier de français langue seconde, le programme intensif favorise visiblement les habilités langagières en français sans nuire au développement de la langue maternelle ni au rendement académique. Les différences entre les groupes INT et IMM s'expliquent par l'inégalité des heures cumulatives d'enseignement de français et par le fait que la performance du groupe IMM aux tests d'anglais et de mathématiques était au-dessus de la moyenne.

Summary

The purpose of this study was to assess French second language proficiency, mother tongue skills and academic achievement of students enrolled in the Intensive French program. Three groups of grade 5 students and three groups of grade 6 students participated in this study. At each grade level, there was one group of students from the Intensive French program (INT group) and two control groups: a group of students from the early immersion program (IMM group) and a group of students from the regular French second language program (REG group).

Proficiency in French was assessed with the following battery of tests: a listening comprehension test, a reading comprehension test, an oral production test and a written production test. To assess mother tongue skills and academic achievement, the Canadian Tests of Basic Skills (English and mathematics) were administered at both grade levels.

The results of the grade 5 study indicate that (1) the INT group scored significantly higher than the REG group and significantly lower than the IMM group on practically all the French language tests. (2) There were no significant differences between the INT group and the REG group on the English language and mathematics tests except on the language usage subtest where the INT group scored significantly lower than the REG group. (3) The IMM group scored significantly higher than the INT and REG groups on all the English language and mathematics tests.

The results of the grade 6 study show that: (1) the INT group scored significantly higher than the REG group and significantly lower than the

IMM group on practically all the French language tests. (2) There were no significant differences between the INT group and the REG group on the English language and mathematics tests. (3) The IMM group scored significantly higher than the INT and REG groups on three English language tests: vocabulary, reading and one language skills subtest. The IMM group also scored significantly higher than the INT group on one mathematics subtest. There were no other significant differences between the IMM group and the other two groups on the English language and mathematics tests.

The findings of this study lead to the conclusion that, by comparison to the regular French language program, the Intensive program promotes increased proficiency in French without detrimental effects on the development of mother tongue skills and academic achievement. Differences between the INT and IMM groups are discussed in terms of cumulative instructional time in French and in terms of the above average performance of the IMM group on the English language and mathematics tests.

Table of Content

	Pages
Introduction	1
The Study	2
Method	3
The Sample	3
The Test Battery	3
Procedure for Administering the Tests	8
Results	
Grade 5	9
Grade 6	15
Summary and Discussion	20
References	26
Tables	27
Appendix I	48
Appendix II	49
Appendix III	50

This report is part of a longitudinal evaluation of the Intensive French second language program which has been implemented in one of the English language schools of the Protestant School Board of Greater Montreal. The program is the first attempt made by the P.S.B.G.M. to provide an extended core program at the elementary level.

The characteristics of the program are as follows: the program is introduced in grade 4 and at that grade level the instructional time devoted to French is tripled by comparison to the regular French second language program. During the following years, i.e., in grades 5 and 6, the program is less intensive, but still more extensive than the regular French second language program. The time distribution over the three year period is shown below:

Grade 4	90 minutes
Grade 5	60 minutes
Grade 6	60 minutes

The primary objective of the program is the development of communicative skills. To achieve this goal, both a more formal second language teaching approach and an informal "immersion" approach are used. The basic text is Bonjour Canada. However, less than half of the daily instructional time is devoted to this text. The rest of the time is evenly divided between an intensive reading program and the development of special themes and activities. The reading program includes intensive, extensive and independent reading and is based on the use of a wide selection of supplementary readers. The purpose of the themes and activities is to provide more informal exposure to oral language in situations that deal

with the students' every day life. Writing skills are introduced in grade 4 and are developed more extensively in grades 5 and 6.

The program has so far been evaluated at the grade 4 level (pilot group and one follow-up group) and at the grade 5 level (pilot group). The results of these evaluations show that (1) the students participating in the Intensive program performed significantly better on all the French language tests than the control groups which consisted of students who were taking the regular French second language program (30 minutes a day), (2) there were no significant differences among the students in the Intensive French program and those in the regular program on the English language tests; (3) on the mathematics tests, the students in the Intensive program scored as high or higher than the students in the regular English program (Adiv and Doré Notes 1 and 2).

Last year's study (Adiv and Doré Note 2) included also two groups of students from an early immersion program (grades 4 and 5). The results of the comparison between the early immersion students and the students in the Intensive French program indicate that the latter had not yet reached the level of French proficiency of the former although the differences on some of the measures of evaluation of the oral production test were not significant.

The Study

The purpose of the present study was to provide further evaluation of the efficacy of the Intensive French program. This time the assessment

of linguistic proficiency and academic achievement was carried out in grades 5 and 6. Thus, the pilot group was assessed at the end of its third year in the program and the follow-up group was assessed at the end of its second year in the program. As in last year's evaluation, a group of immersion students was included in the study so as to have a control group with a high level of proficiency in French.

Method

The Sample

Three groups of grade 5 students and three groups of grade 6 students participated in this study. At each grade level, the groups consisted of: (1) a group of students from the Intensive French program (hereafter INT group), (2) a group of students from an early French immersion program (hereafter IMM group); (3) a group of students from a regular French second language program (hereafter REG group).

The INT group comprised two full classes at each grade level. The IMM groups consisted of one and a half classes at each grade level (a full class, and part of a split-level class). The REG group consisted of two full classes at the grade 5 level and one class at the grade 6 level. Most of the students in all three schools came from middle socio-economic class homes (for exact sample sizes and participating schools see Tables 1 and 8).

The Test Battery

Two batteries of tests were administered: (1) a battery of

French language tests and (2) a battery of English language and mathematics tests. In addition, all the students were administered a Lorge Thorndike test (verbal battery, level B in grade 5 and level C in grade 6) to control for possible differences in mental capacities between the groups.

(1) The French Test Battery

The following French language tests were administered at each grade level (i) a listening comprehension test, (ii) a reading comprehension test, (iii) an oral production test and (iv) a written production test. The grade 5 tests were the same tests as those that had been used in the evaluation of the grade 5 pilot group in 1983. For the convenience of the reader, they will be briefly described here again along with the grade 6 tests.

(i) Listening Comprehension Test

The French listening comprehension test administered in grade 5 was a test prepared by the ministère de l'Education for grade 6 students in the regular French second language program. The test consisted of 56 multiple-choice items recorded on tape. The items were grouped into four sections. In sections 1 and 2, the students heard a stimulus word or sentence and the four alternative responses were presented in pictures (section 1) or in written sentences (section 2). In section 3, the students saw a written sentence and the four alternative responses were presented orally. In section 4, the students heard a short dialogue and

the responses were again presented in written form.

The listening comprehension test administered in grade 6 was taken from a test battery developed for an international study of French proficiency (International Educational Achievement Study IEA , Population II, see Carroll, 1975). It consisted of 40 multiple-choice items grouped into five sections. Sections 1 and 2 were similar in format to those of the grade 5 test. Sections 3, 4 and 5 consisted of tape-recorded dialogues, broadcasts and announcements. Each passage was followed by several questions with multiple-choice answers.

(11) Reading Comprehension Test

The French reading comprehension test administered in grade 5 comprised two parts. The first part was taken from the reading test used in the International Educational Achievement Study (IEA, Population II). It consisted of 18 stimulus sentences which had to be completed by a word or a phrase. In each case, four alternative responses were given. The second part was taken from a multi-level reading test developed by the Ontario Institute for Studies in Education for use in immersion programs. It consisted of five stories. Each story was followed by several questions with multiple-choice answers (17 in all).

The reading comprehension test administered in grade 6 consisted of five parts. Parts 1 and 5 were taken from a French reading test prepared by the ministère de l'Education for grade 9 students in the regular French second language program. Parts 2, 3 and 4 were taken from two different reading tests developed by the Ontario Institute for Studies

in Education (test de lecture 5e et 6e années and test de compréhension écrite, niveau A). In all, there were eight texts. Each text was followed by several questions (27 in all) with multiple-choice answers.

(iii) Oral Production Test

The oral production test administered in grade 5 was entirely picture-based. In the first part of the test, there were three pictures depicting a single action. The second part of the test consisted of three sets of pictures. Each set constituted a story which the students had to narrate. No additional questions were asked, but if a student skipped over one or two pictures his or her attention was drawn back to those pictures.

The grade 6 test also comprised two parts. Part I was picture-based and Part II consisted of an oral interview. On the picture-based part, there were two tasks. In the first task, the student had to describe one picture from among three and the tester had to guess which picture was being described. In the second task, the student had to narrate a story based on four pictures. There were two sets of pictures in the first task and three sets of pictures in the second task.

In Part II of the test, the student and the tester talked about the student's family and about his or her television viewing habits and preferred programs. To assess the students' proficiency in oral production, two different measures of evaluation were used. First, each student's speech sample was evaluated globally by two francophone raters who worked independently. Four different aspects of oral proficiency were assessed:

pronunciation, grammar, vocabulary and communication. In grade 6, a distinction was made between communicative ability on the picture-based task (Communication I) and the oral interview task (Communication II). In addition, the grade 6 students' ability to comprehend what was being said to them during the inverview was also assessed.

Second, a more objective evaluation of the students' oral production was provided by rating each sentence according to semantic and grammatical appropriateness. The following four alternatives were considered: (i) the sentence was semantically and grammatically correct; (ii) the sentence was semantically correct but contained grammatical errors; (iii) the response was semantically unacceptable within the context and (iv) there was no response or the response was predominantly in English. In addition, the percentage of semantically and grammatically correct sentences produced by each student was calculated.

(iv) Written Production Test

This test contained two parts. Part I was a language test and Part II was a free composition. In the language test, the students had to complete a number of sentences. From each sentence, one or two grammatical items (37 in all) had been omitted. This part of the test was taken from the writing test used in the International Educational Achievement Study (IEA, Population II). The same language test was administered to grades 5 and 6. In Part II of the test, the students were given four alternative topics and were asked to write a short composition on one of them. Here the topics given to the grade 5 students

differed from those given to the grade 6 students.

To assess the students' skills in composition writing, each composition was evaluated globally by two francophone raters, working independently. The compositions were rated on four different dimensions: content, grammar, vocabulary and spelling. The ratings ranged from a maximum of 5, indicating native-like skill, to a minimum of 1 indicating very poor skill. The evaluations of both raters were combined to form an average score for each dimension.

(2) The English Language and Mathematics Test Battery

English language skills and achievement in mathematics were measured with the Canadian Tests of Basic Skills, metric version Form 5 (Nelson, 1982). The tests comprised six subtests related to language skills (vocabulary, reading, spelling, capitalization, punctuation, and usage) and three subtests related to mathematics skills (concepts, problem solving and computation). The test battery has been developed for six different levels (grades 3 through 8). Level 11 was administered in grade 5 and level 12 was administered in grade 6.

Procedure for Administering the Tests

All the tests, except the French oral production test, were group administered to intact grade 5 and grade 6 classes. The tests of students with French-speaking parents were, however, excluded from the evaluation. The oral production test was administered individually to a subsample of the total sample. Each individual test lasted approxi-

mately 10 minutes and the entire session was tape-recorded.

The French tests were administered by a native-French speaker and the other tests by a native English speaker. The English tests were administered in February and the French tests were administered in May 1984.

Results

Grade 5

The students' scores on the Lorge Thorndike test were analyzed first using a one-way analysis of variance procedure. The independent variable was program (REG, INT, IMM). The results of this analysis revealed no significant differences among the groups. In consequence, mental capacity was not considered an influencing factor on possible between-group differences on the other tests and the same one-way analysis of variance procedure was used in the analysis of the other test results. Separate analyses were carried out for each test and subtest. In addition, wherever significant differences between the three groups were noted, separate t-tests were run to determine which groups differed significantly from one another. The results of these analyses are summarized in Table 2 (French test results) and in Table 3A (English test results). Except for the scores relating to the percentages of correct sentences in the oral production test, all the scores shown in the tables are raw scores. For the statistical treatment of the percentage values, the latter were transformed using the $Y = 2 \arcsin \sqrt{X}$ transformation. Both these transformed scores and the percentages are

shown in the tables.

Aside from the comparison between the three major groups (INT, IMM, REG), two further comparisons were carried out. The first pertains to the comparison between the two classes within the Intensive French program (INT 1 group and INT 2 group). The second set of analyses compares the performance of this year's INT group to that of the grade 5 Intensive French group which had been evaluated at the end of last year (Adiv and Doré, Note 2). In the case of the first comparison, the results of the analysis of the Lorge Thorndike scores revealed significant differences between the two groups ($F = 6.13$; $p < .05$; $df = 1,37$). Since these differences could influence the results of the other tests, the latter were analyzed using an analysis of covariance procedure (see Appendix I for a brief explanation). On the other hand, there were no significant differences on the Lorge Thorndike scores between the 1983 group and the 1984 group and a simple analysis of variance procedure was therefore used here for the statistical treatment of the other test scores. The results of all of these analyses are summarized in Tables 4 and 5 (comparison between the INT 1 and INT 2 groups) and in Tables 6 and 7 (comparison between the 1983 and 1984 groups). Because of the analysis of covariance used in the comparison between the INT 1 and INT 2 groups, the test scores shown in Tables 4 and 5 are scores adjusted for the between-group differences on the Lorge Thorndike tests.

Comparison between the Three Programs

(1) The French Test Battery

(i) Listening Comprehension Test

On the listening comprehension test, all three groups differed significantly from one another. The REG group ($\bar{X}$ = 25.50) scored significantly lower than the INT group ($\bar{X}$ = 40.61) who, in turn, scored significantly lower than the IMM group ($\bar{X}$ = 52.31).

(ii) Reading Comprehension Test

The results of the reading comprehension test show a pattern similar to that of the listening comprehension test. The REG group ($\bar{X}$ = 14.38) scored significantly lower than the INT group ($\bar{X}$ = 17.65) who, in turn, scored significantly lower than the IMM group ($\bar{X}$ = 30.80).

(iii) Oral Production

The results of the global evaluation reveal again the same pattern i.e., on all four measures of evaluation (pronunciation, grammar, vocabulary and communication), the REG group was rated significantly lower than the INT group who, in turn, was rated significantly lower than the IMM group (for the numerical values of the ratings see Table 2).

The item analysis shows that the REG group ($\bar{X}$ = 25.68) produced significantly fewer sentences than the IMM group ($\bar{X}$ = 29.33). The number of sentences produced by the INT group ranked between those of the other two groups but here the differences were statistically not significant.

The analyses also show that the INT group produced significantly more correct sentences ($\bar{X}$ = 6.29 or 23% of the sentences produced by that group) than the REG group ($\bar{X}$ = 2.53 or 10% of the sentences produced by that group). The IMM group ($\bar{X}$ = 14.33 or 49% of the sentences produced by that group) produced significantly more correct sentences than both the REG and the INT groups. The analysis of the incorrect responses indicates that on all types of incorrect responses, there were significant differences among the three groups, except in the case of the semantically incorrect responses where the difference between the REG group and the INT group was not significant. Interestingly, for the IMM group, grammatically incorrect responses were the most frequent type of incorrect response (9.40 out of a total of 29.23 responses) whereas for the REG and INT groups, insufficient responses were the most frequent type of incorrect responses (REG=19.11 out of 25.68 responses; INT = 13.50 out of 26.96 responses).

(iv) Written Production Test

On Part I of the written production test (language), the IMM group ($\bar{X}$ = 24.31) scored significantly higher than the INT group ($\bar{X}$ = 6.76) and the REG group ($\bar{X}$ = 5.33) and there was no significant difference between the latter two groups.

On Part II of the written production test (composition), the REG group was rated significantly lower than the INT group who, in turn, was rated significantly lower than the IMM group (for the numerical value of all the ratings see Table 2).

(2) The English and Mathematics Test Battery

The results on the Canadian Tests of Basic Skills (CTBS) reveal no significant differences between the REG group and the INT group except on the language usage subtest (REG, $\bar{X} = 19.98$; INT, $\bar{X} = 17.47$). On the other hand, the IMM group scored significantly higher than the REG and INT groups on all the English and mathematics tests (see Table 3A for the mean scores on the different tests).

In order to see how the different groups compared to the Canadian national norms, the students' raw scores on the CTBS were transformed into grade equivalents and into stanine scores (for a brief explanation see Appendix II and Appendix III). The results (Table 3B) show that, in terms of grade equivalents, the REG group's performance ranged from a high of 58 (mathematics, computation) to a low of 52 (mathematics, problem solving); the INT group's performance ranged from a high of 58 (language skills, punctuation) to a low of 51 (language skills, usage) and the IMM group's performance ranged from a high of 71 (language skills, punctuation) to a low of 61 (mathematics, problem solving). The stanine scores indicate that the INT group and the REG group ranked on step 5 of the scale on practically all the tests, whereas the IMM group ranked one to two steps above the INT and REG groups. Thus, the INT and REG groups performed within the "average range" of the national norms for grade 5 and the IMM group performed in the average to above average range.

Comparison of the Two Classes in the INT Group

There were no significant differences between the INT 1 and INT 2 groups on any of the French language tests. Similarly, the performance of the two groups on the English and mathematics tests did not differ significantly from one another (see Table 4 for the French test results and Tables 5A and 5B for the English test results).

Comparison of the 1983 and 1984 Grade 5 Groups

The comparison between the French test results of the 1984 INT group and those of the 1983 INT group (both at the grade 5 level) reveals that the latter ($\bar{X}$ = 3.54) was rated significantly higher than the former ($\bar{X}$ = 3.31) on pronunciation. The 1983 group ($\bar{X}$ = 10.17) also produced significantly fewer insufficient responses than the 1984 group ($\bar{X}$ = 13.50). On the other hand, the 1983 group ($\bar{X}$ = 8.74) produced more grammatically incorrect responses than the 1984 group ($\bar{X}$=6.92). Finally, the 1983 group ($\bar{X}$ = 9.17) scored significantly higher than the 1984 group ($\bar{X}$ = 6.76) on Part I of the written production test (language) and on two measures of evaluation of the composition: content (1983 group, $\bar{X}$ = 2.30; 1984 group, $\bar{X}$ = 1.97) and grammar (1983 group, $\bar{X}$ = 2.21; 1984 group, $\bar{X}$ = 1.78). On the other French language tests, there were no significant differences between the two groups.

On the English and mathematics tests, there were no significant differences between the two groups (see Table 7 for details).

Grade 6

Once again, the students' scores on the Lorge Thorndike test were analyzed first, using a one-way analysis of variance procedure. The independent variable was program (REG, INT and IMM). The results of this analysis revealed significant differences among the groups ($F = 7.07$; $p < .01$; $df = 2,98$). Hence, an analysis of covariance procedure was used here to analyze the other test results. Separate analyses were carried out for each test and subtest. Wherever significant differences among the three groups were noted, a t-test procedure was used to determine which groups differed significantly from one another. The results of these analyses are summarized in Table 9 (French test results) and in Table 10A (English and mathematics test results). All the scores shown on these tables represent scores adjusted for differences on the Lorge Thorndike test scores. The scores pertaining to the percentage of correct responses on the oral production test were obtained by using the $Y = 2 \arcsin \sqrt{X}$ transformation. The percentages are indicated in brackets above the transformed scores.

Aside from the comparison between the three major groups (INT, IMM, REG), a further comparison was carried out between the two grade 6 classes within the Intensive French program (INT 3 and INT 4). The analysis of the Lorge Thorndike scores for these two groups revealed no significant between-group differences. Hence, a simple analysis of variance procedure was used here for the analysis of all the other tests. The results of this set of analyses are summarized in Table 11 (French test results) and

in Table 12A (English and mathematics test results).

Comparison Between Programs

(i) French Test Battery

(i) Listening Comprehension Test

On the listening comprehension test, the REG group ($\bar{X}$ = 21.76) scored significantly lower than the INT group ($\bar{X}$ = 29.99) who, in turn, scored significantly lower than the IMM group ($\bar{X}$ = 36.53).

(ii) Reading Comprehension Test

On the reading comprehension test, there were again significant differences among all three groups. The REG group scored lowest ($\bar{X}$ = 10.97) followed by the INT group ($\bar{X}$ = 14.62) which was followed by the IMM group ($\bar{X}$ = 19.58).

(iii) Oral Production Test

The results of the global evaluation reveal that the REG group was rated significantly lower than the INT group and the IMM group on all six measures of evaluation (comprehension, pronunciation, grammar, vocabulary, communication I and communication II). The INT group, in turn, was rated significantly lower than the IMM group on four of these measures (grammar, vocabulary, communication I and communication II). On the other two measures (comprehension and pronunciation), there were no

significant differences between the INT group and the IMM group (for the numerical values of the ratings see Table 9)

The results of the item analysis show that the REG group ($\bar{X}$ = 25.77) produced significantly fewer sentences than the IMM group ($\bar{X}$=29.67). The number of sentences produced by the INT group ranked between those of the other two groups but here the differences were statistically not significant. The analysis also shows that the REG group produced significantly fewer correct responses ($\bar{X}$ = 2.42 or 9% of the total number of sentences produced by that group) than the IMM group ($\bar{X}$ = 14.40 or 49% of the total number of sentences produced by that group). The INT group ($\bar{X}$ = 6.63 or 25% of the total number of sentences produced by that group) produced significantly more correct sentences than the REG group and significantly fewer correct sentences than the IMM group. The analysis of the incorrect responses indicates that the three groups differed significantly with respect to the number of grammatically incorrect responses and the number of insufficient responses. However, the groups did not differ significantly from one another with respect to the number of semantically incorrect responses. As in the grade 5 results, grammatically incorrect responses were the most frequent type of incorrect response for the IMM group ($\bar{X}$ = 9.63), whereas insufficient responses were the most frequent type of incorrect response for the INT group ($\bar{X}$ = 13.07) and the REG group ($\bar{X}$ = 19.50).

(iv) Written Production Test

On Part I of the written production test (language), the REG group ($\bar{X}$ = 6.70) scored significantly lower than the INT group ($\bar{X}$ = 11.15) who, in turn, scored significantly lower than the IMM group ($\bar{X}$ = 25.07).

The three groups also differed significantly from one another on all the measures of evaluation of the composition (content, grammar, vocabulary and spelling). In each case the INT group was rated significantly higher than the REG group and significantly lower than the IMM group (for the numerical values of the ratings see Table 9).

(2) The Eng[illegible]

The results on the [illegible] (CTBS) reveal no significant differences [illegible] any of these tests. On the other hand, the IMM [illegible] cantly higher than the REG and INT groups on three of the Eng[illegible] vocabulary (IMM, $\bar{X}$ = 33.35, INT, $\bar{X}$ = 29.13; REG, $\bar{X}$ = 30.81), reading (IMM, $\bar{X}$ = 37.62; INT, $\bar{X}$ = 31.09; REG, $\bar{X}$ = 31.89) and language skills, usage (IMM, $\bar{X}$ = 22.97; INT, $\bar{X}$ = 19.73; REG, $\bar{X}$ = 18.67). The IMM group ($\bar{X}$ = 33.71) also scored significantly higher than the INT group ($\bar{X}$ = 27.37) on the computation subtest of the mathematics test. There were no other differences between the IMM group and the two other groups on the CTBS.

In order to see how the different groups compared to the Canadian national norms, the students' raw scores on the CTBS were transformed, as in the case of the grade 5 CTBS results, into grade equivalents and into stanine scores. The results (Table 10B) show that,

in terms of grade equivalents, the REG group's performance ranged from a high of 68 (mathematics computation) to a low of 59 (language skills, capitalization and usage); the INT group's performance ranged from a high of 74 (mathematics, concepts) to a low of 61 (language skills, capitalization) and the IMM group's performance ranged from a high of 79 (mathematics, concepts) to a low of 68 (vocabulary). The stanine scores indicate that INT group ranked one step higher than the REG group in reading comprehension (INT, stanine 6; REG, stanine 5), in language skills, capitalization and usage (INT, stanine 5; REG, stanine 4) and mathematics, concepts (INT, stanine 6; REG, stanine 5). On the other hand, the REG group ranked one step above the INT group in mathematics, computation (REG, stanine 6; INT, stanine 5). On all the other tests, the INT and REG groups received the same stanine score. The IMM group received stanine scores of 6 and 7 and, in the case of mathematics, computation, a score of 8. Thus, as in grade 5, the REG and INT groups performed within the "average range" of the national norms for grade 6 and the IMM group performed in the average to above average range.

Comparison of the Two Classes within the INT Group

On the French language tests, the INT 3 group scored significantly lower than the INT 4 group on the listening comprehension test (INT 3, $\bar{X}$ = 27.90; INT 4, $\bar{X}$ = 32.45), the reading comprehension test (INT 3, $\bar{X}$ = 12.75; INT 4, $\bar{X}$ = 16.32) and on three measures of evaluation of the written composition: grammar (Int 3, $\bar{X}$ = 1.95; INT 4, $\bar{X}$ = 2.44), vocabulary (INT 3, $\bar{X}$ = 2.12; INT 4, $\bar{X}$ = 2.68) and spelling (INT 3, $\bar{X}$ = 2.12;

INT 4, $\bar{X}$ = 2.58]. There were no other significant differences between the INT 3 and INT 4 groups on the French language tests (for details see Table 11). There were also no significant differences between the INT 3 and INT 4 groups on any of the English and mathematics test results (Tables 12A and 12B).

Summary and Discussion

The results of the grade 5 tests can be summarized as follows:

(1) The INT group performed significantly better than the REG group on the French language tests except on two measures of evaluation of the oral production test (total number of sentences produced and semantically incorrect responses) and on Part I of the written production test (language). On these measures there were no significant differences between the INT and REG groups.

(2) The IMM group performed significantly better than the INT and REG groups on all the French language tests except on one measure of evaluation of the oral production test (total number of sentences produced) where there was no significant difference between the IMM group and the INT group.

(3) There were no significant differences between the INT group and the REG group on the English language and mathematics tests except in the case of one language skills subtest (usage) where the INT group scored significantly lower than the REG group.

(4) The IMM group scored significantly higher than the INT and REG groups on all the English language and mathematics tests.

(5) The INT and REG groups scored within the average range of the stanine scale on the English language and mathematics tests and the IMM group scored one to two points above the other two groups.

(6) There were no significant differences between the two classes within the INT group (INT 1 and INT 2) on any French and English language tests and on the mathematics tests.

(7) There were a number of significant differences between the 1983 INT group and the 1948 INT group on the French language tests (pronunciation, grammatically incorrect responses, insufficient responses in the oral production test, language, and the content and grammar of the composition in the written production test). On practically all of these measures the 1983 INT group received better scores than the 1984 group.

(8) There were no significant differences between the 1983 INT group and the 1984 INT group on any of the English language and mathematics tests.

The results of the grade 6 tests can be summarized as follows:

(1) The INT group performed significantly better than the REG group on

all the French language tests except on one measure of evaluation of the oral production test (number of sentences produced) where there was no significant difference between the two groups.

(2) The IMM group performed significantly better than the REG group on all the French language tests.

(3) The IMM group performed significantly better than the INT group on the French language tests except on three measures of evaluation of the oral production test (comprehension, pronunciation and number of sentences produced). On these measures, there were no significant differences between the two groups.

(4) There were no significant differences between the INT group and the REG group on any of the English language and mathematics tests.

(5) The IMM group scored significantly higher than the INT and REG groups on three English language tests: vocabulary, reading and one language skills subtest (usage). The IMM group also scored significantly higher than the INT group on one mathematics subtest (computation). There were no other significant differences between the IMM group and the other two groups on the English language and mathematics tests.

(6) The INT and REG groups scored within the average range of the stanine scale on the English language and mathematics tests and the IMM group scored one to two points above the other two groups on practically all of these tests.

(7) Within the INT group, the INT 4 class scored significantly higher than the INT 3 class on the French listening and reading comprehension tests and on three measures of evaluation of the French composition: grammar, vocabulary and spelling. There were no other significant differences between the INT 3 class and the INT 4 class on the French language tests.

(8) There were no significant differences between the INT 3 class and INT 4 class on any of the English language and mathematics tests.

The major finding to emerge from this study is that both the grade 5 and the grade 6 students in the Intensive French program scored significantly higher on the French language tests than the grade 5 and grade 6 students in the regular French second language program. Furthermore, there were practically no significant differences between the INT students and the REG students on the English language and mathematics tests. These findings are similar to those noted in the previous evaluations of the Intensive French Program. Thus, the outcomes of this study reaffirm the capability of this program to promote higher levels of French language proficiency than the regular French second language

program without detrimental effects on the development of mother tongue skills and academic achievement.

On the other hand, the gap in the level of French proficiency between the INT and the IMM students has not narrowed over the three year span, i.e., from grade 4 to grade 6. This finding is not really surprising if one considers the fact that, cumulatively, the INT students have had much less instructional time in French than the IMM students. Interestingly, the IMM students performed also much better than the INT and REG students on the English language and mathematics tests, particularly in grade 5. These findings are unexpected, since last year there had been practically no significant differences between these two groups on the English language tests (the mathematics tests had not been administered to the 1983 IMM students). A possible reason may be that this year's IMM students were academically stronger than the IMM students who participated in last year's evaluation. An informal comparison between the stanine scores of the 1983 IMM group (see Adiv and Doré, Note 2) and those of the 1984 IMM group at the grade 5 level reveals, in fact, that the latter group scored one stanine point higher than the former on all the English language tests. It should be noted that in terms of national norms, the performance of the INT and REG students on the English language and mathematics tests ranked consistently within the average range. By comparison to last year's study, there is an improvement here for both of these grade 5 groups with respect to problem solving skills.

In conclusion, the findings of this year's study show that even after a second year of only sixty daily minutes of French instruction, the students in the Intensive French program succeeded in maintaining a level of French proficiency that was clearly superior to that of the students who followed the regular program. Thus, the findings of this study suggest that carefully designed follow-up programs can compensate for more extensive instructional time. On the other hand, the consistently superior performance of the immersion students on the French language tests suggests that it may be impossible to compensate for the full immersion experience the latter students have had during their first three years of schooling. Since the grade 6 INT students will be attending a special late immersion program next year, it will be of interest to evaluate their French language skills at the end of that year and to see whether by then they will have achieved parity with their peers from the early immersion program.

Reference Notes

(1) Adiv, E. and Doré, F. Evaluation of the grade 4 extented French core program. Instructional Services Department, The Protestant School Board of Greater Montreal,1982.

(2) Adiv, E. and Doré, F. An evaluation of the intensive French Program: Grades 4 and 5. Instructional Services Department, The Protestant School Board of Greater Montreal, 1983.

References

Carroll, J.B. The teaching of French as a foreign language in eight countries. New York: Wiley and Sons; Stockholm: Almquist and Wicksell International, 1975.

Table 1A

Sample Sizes for Grade 5

(1)	Major Groups	
	Intensive French Program (INT)	40
	Immersion Program (IMM)	25
	Regular Program (REG)	40
(2)	Subgroups within the Intensive French Program	
	INT 1	22
	INT 2	18

Table 1B

Participating Schools

Herbert Purcell	..inburgh	Elizabeth Ballantyne

Table 2

Summary of Grade 5 French Test Results[a]

	REG	INT	IMM	F ratio	df
Listening Comprehension (56)[b]	25.50	40.61	52.31	96.68***	2,101
Reading Comprehension (32)	14.38	17.65	30.80	66.10***	2,101
Oral Production					
Global Evaluation					
- Pronunciation (5)	2.92	3.31	3.70	18.92***	2,55
- Grammar (5)	1.74	2.46	3.33	23.07***	2,55
- Vocabulary (5)	1.74	2.40	3.13	20.09***	2,55
- Communication (5)	1.74	2.52	3.40	31.89***	2,55
Item Analysis					
- Total sentences	25.68	26.96	29.33	4.09*	2,55
- Correct responses (29)	2.53	6.29	14.33	21.02***	2,55
	(10)	(23)	(49)		
- % Correct responses[c]	0.47	0.94	1.52	23.40***	2,55
- Incorrect responses					
(i) grammatically	3.58	6.92	9.40	11.8[illegible]***	2,55
(ii) semantically	0.47	0.29	1.13	4.74*	2,55
(iii) insufficient	19.11	13.50	5.13	40.52***	2,55

Table 2 (cont'd)

Summary of Grade 5 French Test Results

	REG	INT	IMM	F ratio	df
Written Production					
- Language (37)	5.33	6.76	24.31	190.96***	2,102
- Composition					
(i) content (5)	7.52	1.97	3.38	71.92***	2,102
grammar (5)	1.54	1.78	3.19	69.39***	2,102
(5)	1.37	1.85	3.15	113.84***	2,102
(iv) spe..	1.52	1.86	3.02	65.31***	2,102

* $p < .05$

*** $p < .001$

[a]Mean scores joined by a line differ significantly from one another.

[b]Maximum scores in parentheses.

[c]Percentage values shown in brackets above the transformed scores.

Table 3A

Summary of the Grade 5 CTBS Results[a]

	REG	INT	IMM	F ratio	df
Vocabulary (39)[b]	27.81	26.37	33.89	9.96***	2,107
Reading (54)	30.16	29.77	37.15	6.53**	2,108
Language Skills					
- Spelling (40)	26.40	25.42	32.04	7.41***	2,107
- Capitalization (30)	17.58	17.62	22.74	10.12***	2,107
- Punctuation (30)	16.02	15.55	21.63	13.01***	2,107
- Usage (30)	19.98	17.47	24.15	11.27***	2,107
Mathematics Skills					
- Concepts (37)	20.76	21.28	24.52	3.20*	2,107
- Problem Solving (27)	14.10	15.32	20.41	12.51***	2,106
- Computation			32.52	5.54**	2,107

* $p < .05$
** $p < .01$
*** $p < .001$

[a]Mean scores joined by a line differ significantly from one another.

[b]Maximum scores in parentheses.

Table 38

Grade Equivalent and Stanine Scores of the Grade 5 CTBS Results

	REG		INT		IMM	
	GE[a]	ST[b]	GE	ST	GE	ST
Vocabulary	56	5	55	5	65	7
Reading Compr.	55	5	55	5	62	6
Language Skills						
- Spelling	55	5	54	5	64	6
- Capitalization	53	5	54	5	68	7
- Punctuation	57	5	58	5	71	7
- Usage	55	5	51	5	65	7
Mathematics Skills						
- Concepts	56	5	56	5	65	7
- Problem Solving	52	5	54	5	61	6
- Computation	58	6	55	5	63	7

[a]GE: grade equivalent

[b]ST: stanine

Table 4

Comparison of the Grade 5 French Test Results from the Two Classes in the Intensive French Program

	INT1	INT2	F ratio	df
Listening Comprehension (56)[a]	40.86	40.31	0.02	1,31
Reading Comprehension (32)	19.24	16.83	1.05	1,34
Oral Production				
Global Evaluation				
- Pronunciation (5)	3.27	3.38	0.50	1,19
- Grammar (5)	2.51	2.44	0.04	1,19
- Vocabulary (5)	2.39	2.43	0.01	1,19
- Communication (5)	2.61	2.47	0.18	1,19
Item Analysis				
- Total sentences	26.92	27.09	0.01	1,19
- Correct responses	6.41	6.41	0.00	1,19
- % Correct responses[b]	(24) 0.95	(24) 0.95	0.00	1,19
- Incorrect responses				
(i) grammatically	7.21	6.94	0.02	1,19
(ii) semantically	0.46	0.15	1.01	1,19
(iii) insufficient	12.90	13.63	0.07	1,19

Table 4 (cont'd)

Comparison of the Grade 5 French Test Results from the Two Classes in the Intensive French Program

	INT1	INT2	F ratio	df
Written Production				
- Language (37)	7.48	6.52	0.40	1,31
- Composition				
(i) content (5)	1.82	2.15	1.76	1,31
(ii) grammar (5)	1.88	1.71	0.67	1,31
(iii) vocabulary (5)	1.95	1.76	1.10	1,31
(iv) spelling (5)	1.95	1.79	0.71	1,31

[a]Maximum scores in parentheses.

[b]Percentage values shown in brackets above the transformed scores.

Table 5A

Comparison of the Grade 5 CTBS Results from the Two Classes in the Intensive French Program

	INT1	INT2	F ratio	df
Vocabulary (39)[a]	26.81	26.59	0.01	1,29
Reading Comprehension (54)	30.98	28.34	0.65	1,29
Language Skills				
- Spelling (40)	25.56	24.19	0.17	1,29
- Capitalization (30)	17.68	17.71	0.01	1,29
- Punctuation (30)	16.09	14.02	1.21	1,29
- Usage (30)	18.19	16.81	0.44	1,29
Mathematics Skills				
- Concepts (37)	22.04	19.79	0.78	1,29
- Problem Solving (27)	14.76	16.19	0.42	1,29
- Computation (47)	28.83	24.87	1.69	1,29

[a]Maximum scores in parentheses

Table 5B

Grade Equivalent and Stanine Scores of the CTBS Results for the Two Grade 5 Classes in the Intensive French Program

	INT1		INT2	
	GE[a]	ST[b]	GE	ST
Vocabulary	54	5	55	5
Reading Comprehension	54	5	56	5
language Skills				
- Spelling	52	5	55	5
- Capitalization	54	5	54	5
- Punctuation	55	5	60	6
- Usage	49	4	52	5
Mathematics Skills				
- Comcepts	56	5	56	5
- Problem Solving	52	4	56	5
- Computation	55	5	55	5

[a]GE: grade equivalent

[b]ST: stanine

Table 6

Comparison of the French Test Results from the 1983 and 1984 Grade 5 Classes in the Intensive French Program

	1983	1984	F ratio	df
Listening Comprehension (56)[a]	40.88	40.62	0.01	1,83
Reading Comprehension (32)	18.43	17.65	0.25	1,89
Oral Production				
Global Evaluation				
- Pronunciation (5)	3.54	3.31	4.06*	1,68
- Grammar (5)	2.70	2.46	1.94	1,68
- Vocabulary (5)	2.77	2.40	3.50	1,68
- Communication (5)	2.89	2.52	3.70	1,68
Item Analysis				
- Correct responses	9.78	6.29	2.49	1,68
- Incorrect responses				
(i) grammatically	8.74	6.92	4.36*	1,68
(ii) semantically	2.52	0.29	2.22	1,68
(iii) insufficient	10.17	13.50	5.10*	1,68

Table 6 (cont'd)

Comparison of the French Test Results from the 1983 and 1984 Grade 5 Classes in the Intensive French Program

	1983	1984	F ratio	df
Written Production				
- Language (37)	9.17	6.76	4.68*	1,31
- Composition				
(i) content (5)	2.30	1.97	4.27*	1,81
(ii) grammar (5)	2.21	1.78	8.59**	1,81
(iii) vocabulary (5)	2.12	1.85	3.85	1,81
(iv) spelling (5)	2.04	1.86	1.88	1,81

* $p < .05$
** $p < .01$

[a]Mean scores joined by a line differ significantly from one another.

[b]Maximum scores in parentheses.

Table 7

Comparison of the CTBS Results from the 1983 and 1984 Grade 5 Classes in the Intensive French Program

	1983	1984	F ratio	df
Vocabulary (39)[a]	28.56	26.37	1.63	1,88
Reading (54)	30.57	29.77	0.15	1,84
Language Skills				
- Spelling (40)	27.35	25.42	1.15	1,86
- Capitalization (30)	16.40	17.62	1.17	1,86
- Punctuation (30)	15.19	15.55	0.10	1,86
- Usage (30)	18.06	17.47	0.20	1,86
Mathematics Skills				
- Concepts (37)	20.39	21.28	0.39	1,86
- Problem Solving (27)	13.59	15.32	2.41	1,87
- Computation (45)	30.40	27.20	3.47	1,86

[a]Maximum scores in parentheses.

Table 8A

Sample Sizes for Grade 6

(1)	Major Groups	
	Intensive French Program (INT)	43
	Immersion Program (IMM)	34
	Regular Program (REG)	24
(2)	Subgroups within the Intensive French Program	
	INT 3	22
	INT 4	21

Table 8B

Participating Schools

Herbert Purcell	Edinburg	Elizabeth Ballantyne

Table 9

Summary of Grade 6 French Test Results[a]

	REG	INT	IMM	F ratio	df
Listening Comprehension (40)[b]	21.76	29.99	36.53	54.42***	2,88
Reading Comprehension (27)	10.97	14.62	19.58	31.62***	2,93
Oral Production					
Global Evaluation					
- Comprehension (5)	3.31	4.61	4.82	14.86***	2,50
- Pronunciation (5)	2.8	3.47	3.55	10.84***	2,50
- Grammar (5)	1.91	2.87	3.42	23.49***	2,50
- Vocabulary (5)	2.01	2.85	3.42	15.69***	2,50
- Communication I (5)	2.12	2.66	3.52	17.95***	2,50
- Communication II (5)	1.96	2.73	3.32	14.82***	2,50
Item Analysis					
- Total sentences	25.77	26.99	29.67	3.96*	2,50
- Correct responses	2.42	6.63	14.40	18.93***	2,50
	(9)	(25)	(49)		
- % correct responses[c]	0.45	0.97	1.51	21.88***	2,50

Table 9 (cont'd)

Summary of Grade 8 French Test Results[a]

	REG	INT	IMM	F ratio	df
- Incorrect responses					
(i) grammatically	3.36	7.03	9.63	11.99***	2,50
(ii) semantically	0.49	0.30	0.97	2.98	2,50
(iii) insufficient	19.50	13.07	5.39	39.21***	2,50
Written Production					
- Language (37)	6.70	11.15	25.07	104.54***	2,89
- Composition					
(i) content (5)	1.60	2.29	2.84	25.58***	2,89
(ii) grammar (5)	1.49	2.21	3.14	42.82***	2,89
(iii) vocabulary (5)	1.54	2.41	3.02	36.96***	2,89
(iv) spelling (5)	1.52	2.37	3.11	51.33***	2,89

* $p < .05$

*** $p < .001$

[a]Mean scores joined by a line differ significantly from one another.

[b]Maximum scores in parentheses.

[c]Percentage values shown in brackets above the transformed scores.

Table 10A

Summary of the Grade 6 CTBS Results[a]

	REG	INT	IMM	F ratio	df
Vocabulary (42)[b]	30.81	29.13	33.35	4.93**	2,86
Reading (56)	31.59	31.09	37.62	7.80***	2,88
Language Skills					
- Spelling (42)	27.32	28.34	29.28	0.51	2,88
- Capitalization (30)	16.21	18.11	20.48	1.92	2,88
- Punctuation (30)	16.51	18.60	20.44	1.50	2,88
- Usage (30)	18.67	19.73	22.97	6.61**	2,88
Mathematics Skills					
- Concepts (40)	23.62	28.35	27.50	2.17	2,93
- Problem Solving (29)	15.94	17.46	18.42	1.08	2,93
- Computation (45)	30.97	27.97	33.71	6.91**	2,87

** $p < .01$

*** $p < .001$

[a]Mean scores joined by a line differ significantly from one another

[b]Maximum scores in parentheses.

Table 10B

Grade Equivalent and Stanine Scores of the Grade 6 CTBS Results

	REG		INT		IMM	
	GE[a]	ST[b]	GE	ST	GE	ST
Vocabulary	64	5	65	5	68	6
Reading Compr.	63	5	68	6	73	6
Language Skills						
- Spelling	64	5	67	5	72	6
- Capitalization	59	4	61	5	76	6
- Punctuation	62	5	61	5	78	7
- Usage	59	4	65	5	77	7
Mathematics Skills						
- Concepts	63	5	74	6	79	7
- Problem Solving	62	5	65	5	69	6
- Computation	68	6	67	5	78	8

[a]GE: grade equivalent

[b]ST: stanine

Table 11

Comparison of the Grade 6 French Test Results From the Two Classes in the Intensive French Program

	INT3	INT4	F ratio	df
Listening Comprehension (40)[a]	27.90	32.45	6.73*	1,38
Reading Comprehension (27)	12.75	16.32	5.10*	1,40
Oral Production				
Global Evaluation				
- Comprehension (5)	4.41	4.77	2.21	1,22
- Pronunciation (5)	3.27	3.68	4.26	1,22
- Grammar (5)	2.64	3.14	6.72	1,22
- Vocabulary (5)	2.59	3.14	3.87	1,22
- Communication I (5)	2.50	2.82	1.81	1,22
- Communication II (5)	2.55	2.91	2.19	1,22
Item Analysis				
- Total sentence	27.17	26.75	0.08	1,22
- Correct responses	6.17	6.42	0.01	1,22
	(23)	(24)		
- % correct responses[b]	0.91	0.97	0.10	1,22
- Incorrect responses				
(i) grammatically	7.50	6.33	0.51	1,22
(ii) semantically	0.50	0.08	2.89	1,22
(iii) insufficient	13.08	13.92	0.12	1,22

Table 11 (cont'd)

Comparison of the Grade 6 French Test Results from the Two Classes in the Intensive French Program

	INT3	INT4	F ratio	df
Written Production - Language (37)	9.72	12.65	2.74	1,39
- Composition				
(i) content (5)	2.33	2.18	0.49	1,39
(ii) grammar (5)	1.95	2.44	4.50*	1,39
(iii) vocabulary (5)	2.12	2.68	7.29*	1,39
(iv) spelling (5)	2.12	2.58	5.16*	1,39

* $p < .05$

[A]Maximum scores in parentheses.

[B]Percentage values shown in brackets above the transformed scores.

Table 12A

Comparison of the Grade 6 CTBS Results from the Two Grade 6 Classes in the Intensive French Program

	INT3	INT4	F ratio	df
Vocabulary (42)[a]	30.64	28.63	0.44	1,31
Reading Comprehension (56)	34.07	30.37	1.24	1,31
Language Skills				
- Spelling (42)	27.64	29.79	0.69	1,31
- Capitalization (30)	17.07	16.32	0.28	1,31
- Punctuation (30)	16.79	17.53	0.22	1,31
- Usage (30)	21.14	19.47	0.61	1,31
Mathematic Skills				
- Concepts (40)	27.86	25.52	1.04	1,31
- Problem Solving (29)	17.43	16.00	0.43	1,31
- Computation (45)	27.79	28.84	0.19	1,31

[a]Maximum scores in parentheses.

Table 12B

Grade Equivalent and Stanine Scores of the CTBS Results for the Two Grade 6 Classes in the Intensive French Program

	INT3		INT4	
	GE[a]	ST[b]	GE	ST
Vocabulary	65	5	65	5
Reading Compr.	69	6	67	5
Language Skills				
- Spelling	63	5	70	6
- Capitalization	61	5	61	5
- Punctuation	62	5	69	6
- Usage	65	5	65	5
Mathematics Skills				
- Concepts	74	6	73	6
- Problem Solving	66	5	63	5
- Computation	67	5	67	5

[a] GE: grade equivalent

[b] ST: stanine

Appendix I

Explanation of Analysis of Covariance

Analysis of covariance is a statistical procedure which is similar to the analysis of variance in that it is used to compare the results of two or more groups on a particular test. At the same time, analysis of covariance mathematically reduces the influence that another variable, such as I.Q., might have on the test results. For example, if two hypothetical language groups under investigation differ *a priori* in terms of I.Q., and if it is believed that I.Q., will significantly influence performance on the test being administered (e.g., a reading test), then an analysis of covariance will estimate the significance of the language factor. This mathematical procedure is used when it is difficult or impossible to select groups which are equivalent in I.Q..

Appendix II

Explanation of Grade Equivalents

The grade equivalent of a given raw score on any test indicates the grade level at which the typical pupil makes this raw score. In scores between 31 and 81, the first digit represents the grade and the second digit the month within the grade in which the typical pupil makes the corresponding raw score. Strictly speaking, the second digit represents tenths of a year's difference between grade medians for successive years. For example, if a pupil makes a grade equivalent of 57, this means that the raw score on the test is the same as that made by the typical or median pupil in grade five at the end of the seventh month.

The grade equivalent of an entire group is a mean based on the individual grade equivalents of all the students in that group.

Appendix III

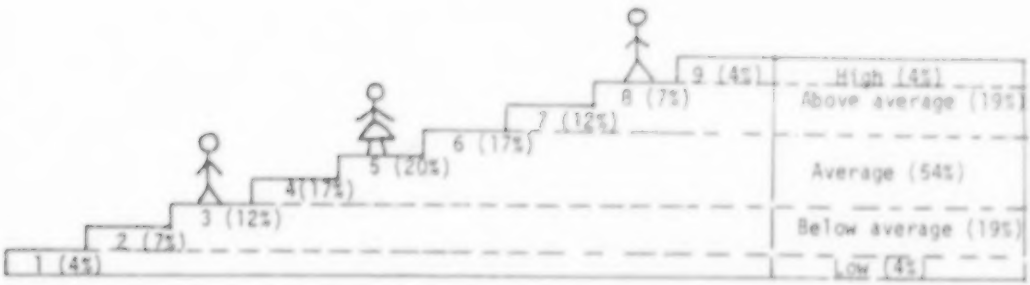
Interpretation of Stanine Scores

Stanine

The stanine scale is a simple nine-point scale of standard scores. (The word stanine was derived from STAndard NINE-Point scale). In this scale, raw scores are converted to scores which range from 1 (low) to 9 (high) with a mean of 5 and a standard deviation of 2.

Figure 1. Percentage of Cases at Each Stanine Level.

Meaning of Stanines
STA: Standard Score: NINE: Nine Step Scale



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